REMARKS

Applicant's invention comprises a rail for supporting semiconductor wafers. The rail has teeth that reduce slip by the wafers with a triangular contact surface having rounded edges on all three sides. The triangular contact surfaces are raised above only a portion of the teeth, and the rounded edges extend for more than half the length of the teeth.

In contrast, the closest prior art reference (*Hengst*) only shows one rounded tip 20 at the forward point of the tooth 17 itself—not a separate, elevated contact surface with elongated edges. Moreover, *Hengst's* tooth 17 *increases* in width from its front tip 20 toward its vertical support 14, rather than decreases as in Applicant's invention. *Hengst* also clearly specifies a radius of not less than 3mm (col.4, lines 63-64), whereas Applicant requires 1 to 2.5mm. In one embodiment, Applicant also emphasizes that its "raised support structures" are separate and distinct from its teeth because they extend for only a portion of the teeth. Applicant also defines the raised support structure as a "wedge-shaped protuberance running along one lateral side of the length of one of the teeth," and that they taper to "a point." Furthermore, the teeth are defined as rectangular with unrounded edges, and have front edges with lateral widths that are greater than lateral widths of the raised support structures at their front edges.

Even when the features of *Hengst* are combined with *Wingo* the combination falls far short of Applicant's invention. At best, the combination of those references would yield sharp rectangular edges *on both* the teeth and the ledges 30 (*Wingo's* Fig.2) except for a rounded front tip 20 (*Hengst's* Fig.1). There is simply no teaching or suggestion in *Hengst* to radius any portion of the tooth other than its front tip.

Accordingly, Applicant has amended the claims to further highlight the above-described differences between Applicant's invention and *Hengst*. For example, Claim 1 requires at least some of the teeth to have "a raised support structure" for contacting and supporting the wafers, which is "located on the top surface" of the teeth. The teeth of *Hengst* do not have any raised

features whatsoever—rather, their top surfaces are completely flat. Importantly, the raised support structure (i.e., not the teeth) have structure, namely, "opposing sidewalls that intersect with and define an upper surface between the opposing sidewalls." In particular, "the upper surface [is] spaced from the top surface," and, "each raised support structure extends for at least approximately 50% of the length of a respective one of the teeth." The teeth of *Hengst* have no portions that are vertically spaced apart, and certainly no portions that extend for at least half the length of the teeth. Finally, Claim 1 also requires that "a radius is formed at and extends along each intersection of each of the opposing sidewalls and the upper surface." The only radiused portions on *Hengst's* teeth are its front tips 20. Front tips 20 are not edges, nor do they extend for any length of the teeth. Thus, Claim 1 is readily distinguishable over *Hengst* and now is in condition for allowance.

Claim 3 depends from Claim 1 and further requires the radiused intersections to "include a front edge and the opposing sidewalls of the raised support structures." In essence, this element requires three sides for the round elongated edges. Again, *Hengst* only discloses a rounded front tip, but not even a single edge. Claim 4 states that the raised support structures "narrow from a front edge thereof along the lengths of the teeth, such that a widest portion of each of the raised support structures is at the front edges." This structural limitation is not found in *Hengst*, which only shows a widening embodiment—but only for its teeth themselves—not for any "raised" structures on the teeth.

Hengst effectively teaches away from the range limitations of Claims 5 and 6 by requiring a large minimum radius of at least 3mm. In contrast, Applicant prescribes a smaller and narrower range for its radiuses (1 to 2.5mm). Further differentiating *Hengst*, Claim 7 states that the "raised support structure" (i.e., not the tooth) extends for at least approximately 70% of the length of each tooth. *Hengst* has no raised structures whatsoever on its teeth. Further to this point, Claim 8 requires the raised support structure to be "a wedge-shaped protuberance running along one lateral side of the length of one of the teeth." A similar argument applies to Claim 9, wherein "each raised support structure runs continuously from a front edge of one of the teeth to

a point located on the tooth at least 80% of the length of the tooth from the front edge of the tooth."

Claim 10 requires each of the teeth to be "rectangular with unrounded edges, and the teeth have front edges with lateral widths that are greater than lateral widths of the raised support structures at front edges thereof." In contrast, *Hengst's* teeth have lateral widths that widen from front to back. Finally, Claim 11 requires the raised support structures to "taper to a point adjacent to the vertical section," rather than widen toward the vertical section like *Hengst*. Claims 12 and 14-22 utilize similar language and are likewise readily distinguishable over the cited combination.

On page 5, the Examiner asks about Applicant's teaching to reduce "contact area with the underside of the wafer." Applicant maintains that its invention does so by (1) limiting the contact area of each tooth to *only* the raised support surface (i.e., Applicant does not use the *entire* top surface of the tooth); (2) limiting the width of the raised support surface to a fraction of the width of the tooth; and (3) rounding *all* edges of the raised support surface. Moreover, Applicant would like to point out that Applicant teaches a *reduction* in contact area, while *Hengst* teaches an *increase* in surface area contact. The direction of the wedge shape (i.e., widest portion nearest the center of the wafer) better supports the greatest weight of the wafer as distributed on the contact area of the raised support surface, thus reducing sag and slip of the wafer at the extreme temperatures encountered during processing. See, also, Applicant's page 5, paragraph 15. The multitude of rounded edges in Applicant's invention ensure more even heat distribution to the wafer, thereby reducing thermal stress concentrations in the wafer.

It is respectfully submitted that the present application is in condition for allowance and favorable action is requested. No fee for an extension of time or other fees are believed to be required. However, in the event that one or more fees are required, please charge them to **Bracewell & Giuliani LLP's Deposit Account Number 50-0259.**

Respectfully submitted,

Michael E. Noe, Jr.
Reg. No. 44,975
BRACEWELL & GIULIANI, LLP
P.O. Box 61389
Houston, Texas 77208-1389
(512) 542-2135

ATTORNEY FOR APPLICANTS